

W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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The 2002 Amateur Radio Year in Review!

Every year about this time we pause to reflect on what has happened to Amateur Radio during the past 12 months. Being tied to technology trends, ham radio is naturally always changing. And 2002 was no exception! Here are what we feel were the major stories of the past year.

JANUARY 2002

• The year 2002 was the second full year under the FCC's new Amateur Radio restructuring plan which went into effect in the Spring of 2000.

This was a major change with only three Amateur Radio license classes being available after April 15, 2000. All six license classes could be renewed or modified, but applicants could only be examined for the Technician, General and Amateur Extra Class tickets. The telegraphy requirement was reduced to 5 words-per-minute for the General and Amateur Extra Class.

The Technician Class was impacted the most.

- (1.) Amateurs holding Technician tickets before March 21, 1987 were allowed to immediately upgrade to the General Class without further testing.
- (2.) No new Technician Plus Class licenses would be issued and;
- (3.) Tech Plus licensees would have their licenses renewed as "Technician," but would still retain their HF privileges on 10, 15, 40 and 80 meter CW and 10 meter phone between 28.3 and 28.5 MHz.

- (4.) Another wrinkle was that all previous Novice operators and Technicians licensed before February 14, 1991 with long expired licenses would still retain Morse code (Element 1) 5 wpm examination credit.

These license class structural changes have caused significant increases in the number of Technician and General Class licensees (each gaining 25% over the past two years) and Amateur Extra Class operators increased about 35%.

These increases were offset by corresponding decreases in the license classes that were not continued: Novice operators decreased 30%, Tech Plus (down 45%) and Advanced Class (down 20%) operators. The end result is that the total number of ham operators has changed very little in the last five years and there is basically no growth in the U.S. Amateur Service.

The following table shows the trends in the license classes over the past three years.

Year End Census of Amateur Radio Operators				
Lic.	1999	2000	2001	2002
Extra Cl.	75,392	93,751	96,310	101,392
Advanced	103,471	88,679	86,555	84,338
General	110,386	134,018	138,239	139,535
Tech Plus	133,359	100,412	85,997	74,156
Technic.	202,409	219,223	232,947	246,881
Novice	52,375	45,104	40,323	36,289
Total	677,392	681,187	680,371	682,591

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On page 9 we show a chart of the current number of radioamateurs by state and license class with a comparison to last year. Note that we have combined the Technician and Tech Plus license classes since there are thousands of Technician Class amateurs who have passed the 5 wpm code or have renewed their Tech Plus license and received a Technician license.

- The FCC began a proceeding in the beginning of 2002 which looked toward yanking the ham license of convicted computer hacker, Kevin Mitnick, N65NHG. The FCC said "...Mitnick's criminal behavior raises a substantial and material question as to whether he possesses the requisite character qualifications to be and remain a Commission licensee." Mitnick had been licensed for more than 25 years ...ever since he was 13 years old.

- The FCC again denied an ARRL request that would have extended limited preemption to CC&R's. "Covenants, Conditions and Restrictions" are the various land-owner agreements in home owner deeds. The League had asked a year ago that the full Commission review a decision by one of its bureaus concerning antennas and support structures. Upon review, the FCC said it found "...no basis to reverse the Wireless Telecommunications Bureau's decision."

- At the January 2001 ARRL Board meeting, the Directors voted to appoint a committee to solicit membership input about updating the ARRL position on "refarming" (re-adjusting) the HF Novice bands in light of the 2000 Amateur Radio license restructuring.

The Novice Spectrum Study Committee submitted its final report to the Board at the 2002 Annual Board Meeting. It recommended that the ARRL petition the FCC to eliminate the Novice CW subbands and allow Novices and Technicians with Element 1 credit to operate CW on the General 80, 40, 15 and 10-meter CW bands with up to 200 W output. The panel suggested that certain segments of those bands be set aside for "slow CW operation" to assist new Morse code operators. The committee also recommended "refarming" the current Novice subbands to allow additional phone spectrum on the 80, 40 and 15 meter bands for the General, Advanced and Extra Class.

Meeting on January 18, 2002, the ARRL Board voted to amend the Committee's proposal somewhat.

- On January 9th, the FCC began a proceeding to determine whether Herbert L. Schoenbohm (ex-KV4FZ) of the U.S. Virgin Islands should be relicensed. Schoenbohm's former ham license was not renewed by the FCC because of his past criminal behavior involving the illegal use of telephone access codes and because he "...misrepresented facts" in his testimony before the FCC.

Schoenbohm passed the examination requirements for the General Class license on April 4, 2001 (and later, Extra Class) but the FCC will not issue the license until he proves that he has the appropriate character qualifications.

- The United Kingdom began issuing a new entry level

into ham radio called the "Foundation" license. This 10-watt license permits HF operation on all bands through 70-cm (except 10 meters) without learning the Morse code. Only commercially manufactured transmitters and kits can be used. Beginners must pass an easy 20-question multiple choice exam after completing a 10-hour weekend class on operating procedures, rules, licensing requirements and safety.

The so-called Morse code "assessment" is basically no exam at all. It consists of decoding a short series of Morse code dots-and-dashes into text by referring to "supporting information" (otherwise known as a "crib" sheet) containing the alphabetized dot-dash sequences. There is no time limit in which to complete the Morse transcription (which is solved more or less like a cryptogram.) The training program was developed by the Radio Society of Great Britain (RSGB).

- After a four month long hiatus caused by the anthrax scare, the FCC once again began issuing Vanity call signs to Amateur operators. The suspension was caused by the necessity to have all paper-filed Vanity call sign applications decontaminated. The delay was lengthened when nearly a hundred Vanity call sign applications were lost in the "sanitizing" process. Electronically-filed applications were held up while waiting for the missing documents.

- The VECs Question Pool Committee agreed that, in the future, all license examination question pools will be revised every four years. The following schedule applies:

Lic. Class	Released	Begin Using	End Using
Extra Class	Dec. 1, 2001	July 1, 2002	June 30, 2006
Technician	Dec. 1, 2002	July 1, 2003	June 30, 2007
General	Dec. 1, 2003	July 1, 2004	June 30, 2008
Extra Class	Dec. 1, 2005	July 1, 2006	June 30, 2010
Technician	Dec. 1, 2006	July 1, 2007	June 30, 2011
General	Dec. 1, 2007	July 1, 2008	June 30, 2012

FEBRUARY 2002

- The FCC's International Bureau and the various Informal Working Groups (IWG) continued their meetings toward arriving at a "Preliminary View" of the WRC-2003 Agenda items. IWG-6 is considering Amateur Radio issues. The current Article S25 contains the International Amateur Radio Rules which is eleven paragraphs long.

The IWG-6/WAC "Preliminary View" is that the new Article S25 International Radio Regulations covering the Amateur Radio Services will contain only six paragraphs, as follows:

Section I - Amateur service

S25.1 §1 Administrations shall verify the technical and operational qualifications of any person wishing to operate an amateur station.

S25.2 §2 (1) Transmissions between amateur stations of different countries shall be limited to communications incidental to the purposes of the amateur service or of a personal character.

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(2) Except with the authority of the relevant administration granted to meet a particular operational need, transmissions between amateur stations shall not be encoded for the purpose of obscuring their meaning.

S25.3 §3 Administrations are urged to take the steps necessary to allow amateur stations to prepare for and meet communication needs in the event of a natural disaster.

S25.4 §4 An administration may, without issuing a licence, permit a person who has been granted a license to operate an amateur station by another administration, to operate an amateur station while that person is temporarily in its territory, subject to such conditions or restrictions it may impose.

Section II - Amateur-satellite service

S25.5 §5 The provisions of Section I of this Article shall apply equally, as appropriate, to the amateur-satellite service.

S25.6 §6 Administrations authorizing space stations shall ensure that sufficient earth command stations are established before launch to ensure that any harmful interference caused by emissions from a station in the amateur-satellite service can be immediately eliminated.

- On February 14th, the FCC approved scaled down use of ultra-wideband technology for (commercial) handheld wireless communication, ground penetrating radar, vehicle collision avoidance systems and short range, high speed data transmission. UWB, a digitally enhanced radar technology, works across a wide band of spectrum (including ham bands), transmitting a series of narrow low-power pulses which are undetectable by conventional radios.

- The ARRL strongly opposed the FCC's proposal to permit the use of RFID (radio frequency identification tags) in the 70-cm band between 425 to 435 MHz. RFID tags are used for automated tracking and inventory-taking.

MARCH 2002

- On March 22, 2002, the ARRL filed a massive Petition for Rulemaking requesting that the FCC eliminate the 80, 40 and 15 meter Novice/Tech Plus CW subbands and redistribute ("refarm") the spectrum to increased phone spectrum for the General, Advanced and Extra Class. Novice, Tech Plus and Technicians with code credit would also gain more CW operating spectrum.

APRIL 2002

- The VECs Question Pool Committee issued a new outline for the Technician Class question pool which departed from the previously FCC-mandated ten topics that had been used for decades. The syllabus was designed to more closely follow a beginner's training course.

- On April 5th, vendors of Amateur Radio equipment and supplies formed the American Association of Radio Enthusiasts (AARE). The non-profit organization will provide a conduit by which commercial dealers and manufacturers can exchange ideas, work together on projects and help Amateur Radio grow. The group's goal is to double the number of ham operators within five years.

- The FCC proposed to increase the \$12.00 Vanity call sign fee to \$14.50. After a short public comment period, the higher fee went into effect in September 2002.

MAY 2002

- Attendees at the Dayton HamVention heard the FCC's Bill Cross give his annual assessment on the status of ham radio. He covered the impact that the April 2000 license restructuring has had on the hobby. "The data shows that overall, we aren't attracting many new people to ham radio. Growth over the two year period is about one quarter of one percent per year." He also covered a number of petitions for Amateur Radio rulemaking that the FCC has received.

- On May 14th, Rep. Steve Israel (D-NY, whose father is K2JCC) introduced the "Amateur Radio Emergency Communications Consistency Act" into Congress. H.R. 4720 would require private land-use regulators to "reasonably accommodate" Amateur Radio antennas consistent with the limited federal preemption known as PRB-1, which now applies only to states and municipalities. Rep Greg Walden, WB7OCE (R-OR) and Rep Pete Sessions (R-TX) signed on as original cosponsors. The bill died in committee at year end.

- On May 15th, the FCC released a Notice of Proposed Rulemaking which looks toward allocating spectrum for two new ham bands. It proposed to allocate the 135.7-137.8 kHz (low frequency, LF) and 5250-5400 kHz (60-meter HF) bands to the Amateur Radio Service on a secondary basis. The Commission also proposed to upgrade the existing secondary Amateur Radio Service allocation in the 2400-2402 MHz band to primary status and to add a primary allocation for the Amateur-Satellite Service in this band.

JUNE 2002

- The South American country of Venezuela, which had earlier offered to host the 2003 World Radio Conference, changed its mind and withdrew the offer. The month long WRC-2003 will now be held in Geneva, Switzerland between June 9 and July 4, 2003.

- A new, all-Amateur (Expedition-5) crew took over duties at the International Space Station. (Peggy Whitson KC5ZTD and two Russians, Valery Korzun, RZ3FK and Sergei Treschev, RZ3FU.) They replaced another all-Amateur crew (Yuri Onufrienko, RK3DUO) and two Americans, Dan Bursch, KD5PNU and Carl Waiz, KC5TIE.)

JULY 2002

- The ARRL Board proposed at their January 2002 meeting to move the Section News and Contest Result line scores from their QST Journal to the ARRL Website. The Board ratified this proposal at their July Board meeting. The "Moved and Seconded" material has already been moved from QST to the Web. The ARRL Board also voted to petition the FCC to revise Part 97 to regulate subbands by signal bandwidth rather than by mode.

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- The comment period of the FCC's proposal to allocate two new ham bands (135.7-137.8 kHz and 5250-5400 kHz) and to elevate the 2400-2402 MHz band to primary status closed on July 29. Needless to say, the Amateur community was overwhelmingly in favor. Many comments from the commercial sector (especially the electrical power industry), however, were opposed.

- On July 9th, in a "Finding of Fact" proceeding, the FCC's Enforcement Bureau said there was sufficient evidence to support a finding that Herb Schoenbohn (KV4FZ) had rehabilitated himself and should be re-licensed.

- The National Conference of VECs held their annual conference in Gettysburg, PA on July 27th. The VECs (with FCC approval) agreed to allow the Anchorage (Alaska) VEC to conduct Amateur Radio examinations at remote outposts over the Internet on an experimental basis. An exam proctor will oversee the administration of the license exams at the remote site. The exams will be transmitted over the Web from Anchorage. The trial program will last for one year and a full report will be given to the VECs at next year's Conference scheduled for July 25, 2003.

AUGUST 2002

- An educational TV series was announced featuring Amateur Radio. Produced by Bill Desjardins W1ZY of Boston, Mass., the "Human Race" has two ham operators participating in a global "road rally." Starting in July 2003 from Kansas City, one heads east, the other west with transportation limited to that voluntarily provided by other ham operators. The tentative schedule calls for the completed 8-part television mini-series to air in the fall of 2004.

Along the way, each racer will encounter a series of pre-selected "ham hosts." These are people who have expertise in a particular area of Amateur Radio. Each competitor will be outfitted with advanced communications systems, including Amateur Radio stations. Each will also be accompanied by a TV production crew and tracked using the Global Positioning System and APRS.

Their progress will be displayed on a constantly updated website enabling hams and others around the world to follow the race making it a competition that everyone can be a part of. "The Human Race" is based on the premise that Amateur Radio is inherently a human activity. As such, technology is a tool used by people around the world to connect and communicate with each other," says W1ZY.

Corporate sponsors are Kenwood and Icom. Amateur organizations around the world have endorsed the TV documentary. Surprisingly, the ARRL has had very little to say about it ...probably because CQ Magazine had been named as the "Official Journal" of the "Human Race."

The group has received an Icom IC-706MKIIG (capable of all-mode communications from 160 meters to 70 cm) and is already operating on 28.465 MHz from 11:00 and 17:00 GMT. Kenwood has also supplied radio equipment to the effort.

The Human Race has applied for a grant from the Sloan Foundation to research the historical roles played by individual amateur radio operators in the 20th century. <www.etcsl.com/humanrace/index1.html> ...shortly to be moved to <www.humanrace.org>.)

- The American Radio Relay League received a \$181,000 homeland security grant to develop and train ham operators in emergency communication procedures. The League was one of several non-profit organizations designated to share in some \$10.3 million in federal grants to boost homeland defense volunteer programs.

SEPTEMBER 2002

- Citizens Band enthusiast William "Rabbit Ears" Flippo, of Jupiter, Florida was sentenced to 15 months imprisonment and fined \$25,000 for unlicensed operation on ham radio frequencies and intentionally jamming the the Jupiter-Tequesta Florida Repeater Group. Flippo had previously been fined \$20,000 by the FCC for unlicensed operation on 28.375 MHz, malicious interference to ongoing ham radio communications and with failing to let FCC representatives inspect his radio equipment.

OCTOBER 2002

- Pop music idol, Lance Bass, a 23-year-old member of the 'N Sync band was scheduled to be the third tourist and youngest ever to travel to the International Space Station. The spaceflight, targeted for October 28th, was to form the basis of a network TV mini-series called "Celebrity Mission: Lance Bass." The series was to include six one-hour "training" episodes, a two-hour "launch and in space" special, a "return to earth" episode ...concluding with an 'N Sync concert a week after his return which would be aired in 40 countries. But a small hitch developed. The promoter failed to come up with the \$20 million air fare. At last word, the trip has been "postponed." As many as 15 other "Celebrity Missions" to the Space Stations are supposedly in the planning stages.

NOVEMBER 2002

- Well known DXer, Dr. Don Miller W9WNV was released from prison after serving 23 years (of a 25 years to life sentence) for conspiring to murder his estranged wife. Now 66, Miller was 43 at the time.

DECEMBER 2002

- The FCC agreed to renew the ham license of convicted computer hacker, Kevin Mitnick N6NHG and the Extra Class application of convicted felon Herb Schoenbohm. On December 7th, Schoenbohm was issued NP2MJ. No action has yet been taken on Mitnick's license renewal.

- On December 2nd, the VEC's Question Pool Committee (chaired by Scotty Neustadter W4WW) released a new Technician Class Question Pool. The new pool contains 511 total questions ...about one-third more than the current Technician Class question pool which contains 384 questions. It must be used effective July 1, 2003.

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CUTTING EDGE TECHNOLOGY

Two quotes from the November issue of Electronic Business: "Wi-Fi is generating high revenue growth now because it hits the sweet spot in terms of cost, power consumption, data speed, range and readiness for deployment."

"Roughly 40% of the notebooks shipped this year incorporate 802.11b wireless radios. Those computers can connect to broadband access points — digital subscriber lines or cable modems in homes, or corporate networks — at speeds of 11M bps at a range of about 100 feet."

"Although actual throughput is only about half the data rate, that's still fast enough to handle most needs of road warriors. Wi-Fi chipsets are now shipping [at a rate of] 1.5 million units a month."

A T&T, IBM and Intel have formed a new company, Cometa Networks, to create a nationwide Wi-Fi network which allows users of personal and hand-held computers to connect to the Internet at high speed without cables.

Cometa Networks says it will deploy more than 20,000 wireless access points by the end of 2004 to provide a high-speed Internet connection within a five-minute walk in the 50 largest metropolitan areas ...or within a five minute drive in suburban areas. Connections would generally be at a typical home broadband connection speed. Cometa will wholesale their service to firms wishing to offer Wi-Fi Internet service.

Ultra wideband is in the wings. "UWB radio is a technology originally developed to allow military radar to detect objects behind walls or enemies below tree lines. "The Federal Communications Commission allows UWB to operate at low power in the 3.1- to 10.6-GHz range. UWB's short range of only 30 feet puts it squarely in competition with Bluetooth."

"But it has a spectacular data rate of 100M bps, which makes it ideal for shipping multiple streams of video among electronics devices in the home, such as set-top boxes and digital video recorders"

"Users won't put up with the slow speeds of Bluetooth when they're undertaking tasks like transferring video from their digital camcorder to their TV sets or computers...." More information at: <www.e-insite.net/eb-mag>.

EMERGING COMMUNICATIONS

New research from Boston-based Strategy Analytics, reports that acceptance of high definition television is growing — but no where near as fast as forecast. The firm predicted that by 2008, 29 million US homes will have HD-capable digital TVs with half connected to an HDTV service, either cable or satellite.

That amounts to a 30 percent digital TV market penetration ...with about 15 percent of the approximate 98 million TV households able to receive HDTV. The U.S. Congress had envisioned that 85 percent of the U.S. would have DTV capability by 2006. It won't come close!

The HDTV study suggests that by 2008, 27 percent of those digital TV viewers would get their HD signals from cable, 14% from satellite services, and 8% from terrestrial broadcasters. The remaining 51 percent of all viewers will still be viewing DTV but not HDTV.

Strategy Analytics said 4.8 million U.S. homes owned a DTV set by the end of 2002 with about one million equipped with HDTV tuners so they could view high definition signals.

The report identifies the increasing support of cable and satellite operators and their content partners as a key factor in the take-up of HDTV services. More at: <www.strategyanalytics.com>.

An Ipsos-Reid Marketing Research survey found that about 74 percent of Americans are aware of HDTV, but of this number only 10 percent are "very familiar" with it while 36 percent are "somewhat familiar". And the largest percentage (54 percent) of consumers who are aware of HDTV "have heard of HDTV but don't know anything about it."

Another Ipsos-Reid statistic: In late-2000, 8% of American households received Internet service through cable modem access. In 2002, 20% now receive the Internet over coaxial cable lines.

Direct Broadcast Satellite (DBS) Operators, EchoStar (Dish Network) and Hughes Electronics (DirecTV) have terminated their \$27 billion merger plans. DirecTV is the larger of the two services, with about 10 million subscribers. But the smaller Dish Network, which serves about 8 million homes, was to be the surviving satellite

company.

Under the terms of the breakup, EchoStar paid Hughes \$600 million in cash, and Hughes will retain its 81 percent ownership position in PanAmSat. The merger was canceled when the FCC, the Department of Justice, 23 states, the District of Columbia and Puerto Rico opposed the acquisition. The regulators called the merger "anti-competitive and injurious to consumers" since a single DBS operator would have no competition.

EchoStar and DirecTV had claimed their competition came from cable TV and that the merger would give them the resources to offer a wider array of services, such as more local TV and HDTV channels and nationwide high-speed Internet access service.

But that does not mean that DirecTV, Inc., will not be sold. Companies interested in making a bid for the DBS operator include Liberty Media Corp., News Corp. (which owns the FOX network), and Vivendi Universal Entertainment (VUE owns Universal films and the USA network.) VUE is the U.S.-based programming arm of French conglomerate, Vivendi.

As a general rule, cable operators are adding broadband Internet customers and losing video subscribers. Leichtman Research Group said cable added 1.1 million new broadband additions during the third quarter of 2002, but lost over 250,000 video customers. DSL providers added 540,000 broadband users during the same period. Cable companies continue to dominate the broadband market, with a 65% market share.

The number of users accessing the Internet via a broadband connection grew 10.8% in the third quarter. The 1.68 million subscribers who signed on to high speed broadband during the quarter represented the highest growth so far this year and was 400,000 more than signed on in Q3 last year. 15.6 million U.S. surfers now have a high speed connection.

COMPUTERS & SOFTWARE

Walmart, the world's biggest retailer, is offering a \$199.86 desktop personal computer on its website. To reach that price point, the PC does not have a Windows operating system nor an Intel microprocessor. But it will surf the web, handle e-mail and slimmed-down

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word processing just fine. Insiders say that Walmart is selling thousands of units per month.

The PC, made by Microtel Computer Systems uses the free Linux operating system (LindowsOS) and has a CD drive, a 10 gig hard drive, 128 Meg of memory, keyboard and mouse with scrolling wheel. The 800-MHz microchip is by VIA Technologies Inc. (VIA C3.) All sorts of software programs are also included. The same system with Windows Home XP and a modem costs \$100 more. More info at: <www.walmart.com>.

In a strange turn of events, Gateway Inc., the third-largest U.S. maker of personal computers, is linking idle PCs in its stores and selling their computing power to businesses.

The "Processing on Demand" service will use 8,000 demonstration PCs in 274 Gateway Country stores. The linked computers will have a capacity in the trillions of calculations a second.

The cost will be 15 cents for each hour of processor capacity used. Most supercomputer centers charge between \$1 and \$3 an hour.

GADGETS & GIZMOS

Tablet PCs are poised as the next "killer app" says Allied Business Intelligence, the Oyster Bay, N.Y.-based research group. They forecast that the Internet appliance market will be worth about \$14 billion in 2002 and will grow to \$32 billion within five years. ABI said that "Tablet PCs have the potential to overtake the notebook segment. But improvements need to be made -- namely the handwriting recognition technology and the battery life -- before the device will really take off. For insurance adjusters and factory floor workers, pen-based input makes for easier entry of data." <www.alliedworld.com>.

Gateway has just entered the Tablet PC business and joins Toshiba, Hewlett-Packard and Microsoft which offer similar devices.

Gateway's 1-inch thick, 3-pound \$2799 device runs on Microsoft's Windows XP Tablet PC Edition and features a 12-inch screen. Included is built-in WiFi 802.11b wireless networking capabilities, a docking station, two digitizer pens, portable keyboard and external DVD/CD-RW

drive. The device is powered by Intel's 866MHz mobile Pentium III processor and comes with 256 MB of memory and a 40GB hard disk.

Tablet PCs are described as being "comparable to a pad of paper," and come in both "slate" or "convertible" designs. Slate resembles a legal-size notepad that accepts input from an electronic pen and functions like a portable writing tablet, or it can be docked and attached to a keyboard for a more PC-like experience.

In his Comdex 2002 keynote address, Microsoft's Bill Gates said "Within five years, Tablet PCs will be the most popular form of PC sold in America."

Avis Rent A Car System Inc., the world's second-largest car-rental company, will be offering radios from XM Satellite Radio in its cars nationwide beginning in 2003. They plan to add up to 50,000 satellite-radio-equipped vehicles from General Motors Corp. to its fleet. Customers will be charged an extra \$2.99 a day for access to 100 channels.

INTERNET & WORLD WIDE WEB

It seems hard to believe, but the concept of Web browsing is only ten years old.

The World-Wide Web was invented in Switzerland by Tim Berners-Lee in 1991, and later pursued by research groups working at Cornell, MIT, UC Berkeley, and National Center for Supercomputing Applications (NCSA) at the University of Illinois at Champaign (UIC).

"Browsers" got their start at UIC in December 1992 when "Mosaic," the first viewer for reading the Web was developed. The program was written by University of Illinois undergraduates, Marc Andreessen and Eric Bina who were paid \$6.85 an hour by the NCSA for their efforts.

The first version was for UNIX. A Mac and Windows version followed November 1993. Mosaic was designed to handle not only text, but graphics, sound and video as well.

Two million people downloaded the free browser within a year and many built websites. The rest is history. The university still grants a free license to personal users. But if you want to modify and distribute it (even for free), you must pay a licensing fee. The total royalty to the U

of I has been in the millions.

Some 600 million people now use updated versions of Mosaic to view some 200 million websites. One billion people will use a Mosaic adaptation by 2005.

Late comer, Microsoft did not sign on to web browsing until January 1995. The firm paid \$13 million for their Mosaic license and launched its Internet Explorer which it gave away in order to increase its browser share ...basically putting an end to future U of I lucrative licensing deals.

Where are people shopping online? December online sales are not yet in, but Internet shoppers boosted November online sales by a hefty 22 percent to \$6.2 billion, according to the eSpending Report from Goldman Sachs & Co., Harris Interactive, and Nielsen/Net-Ratings.

During Thanksgiving week, eBay.com (and its "Buy It Now" site) was the busiest online retail site, the report said. The next nine busiest sites: Amazon (including its new "Apparel Mini-Mall"), Yahoo Shopping, MSN, WalMart.com, BestBuy.com, AOL, ColumbiaHouse.com, ToysRUs.com and DealTime.com.

According to ComScore Networks, consumers spent a record \$1.4 billion on merchandise online over the post-Thanksgiving week, up 38% from the same period a year ago.

And bargain site Overstock.com reported sales of \$7.2 million for Dec. 1-7, more than triple the \$2.3 million in sales for the same week last year. Online sales appear to be booming!

But all may not be rosy! The Gartner Group says Amazon.com may be in for a surprise at the high rate of apparel returns. Online clothing sales is new to them.

Gartner said that a normal rate of after-Christmas apparel returns and exchanges is 20 percent of sales ...which sometimes reaches 35 percent ...a major headache for retailers.

"With high turnover of apparel, the cost of processing a return reduces or eliminates the profit on each item," Gartner said in a recent study. "Amazon.com may be over-reaching and returns could undermine its heretofore successful business model."

And catalog shopping seems to be shifting to online. The Shop.org/-BizRate.com study reported that

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consumers are shifting their holiday buying from catalogs to online. Online buyers surveyed on December 2 and 3 indicated that they plan to spend more online (35%) this holiday season and less in catalogs (47%).

WalMart.com thinks people will buy freshly cut Christmas trees sight unseen. They offered Christmas trees for the first time this year. Fraser firs of 6 to 6.5 feet are \$57.64 plus shipping. It delivered trees within a few business days with a nutrient to keep them fresh and a disposal bag for after the holidays directly from a tree farm which cut and shipped the trees immediately after they were ordered.

Spam is apparently not a problem at work. That's the conclusion of a survey by Pew Internet Research. Unsolicited commercial E-mail (UCE) is far more prevalent in personal than in office e-mail accounts.

Pew found that 52 percent of the people questioned said they received no spam in their work email boxes. Another 19 percent said unsolicited mail is 10 percent or less of all incoming messages.

These figures run contrary to the general perception that American workers are inundated with e-mail and that the time spent processing spam is draining their productivity. The study's author said office workers get less spam because their email addresses are more difficult for mailers to collect.

Furthermore, companies often take defensive measures such as filters that divert spam before it reaches employees' inboxes and many educate employees on how to avoid common spam traps, such as avoiding responding to spam, which often simply provides verification that their address is live (which results in more spam) and avoiding posting their addresses in chat rooms or on message boards where spammers can easily harvest them.

EBay customers are the latest target for Internet thieves. Some of eBay's 55 million customers received an e-mail during early December directing them to log on to a fake Florida-based <eBayUpdates.com> web site to re-enter their credit-card information ...supposedly to correct a billing error. The bogus site, set up in Florida last week, has since been taken down.

WASHINGTON WHISPERS

The growth of wireless phones is huge! According to a government report, the nation's wireline telephone companies have lost millions of local phone lines.

The FCC said traditional carriers lost 6 million phone lines during the first six months of the year; 167 million phone lines as of June 2002, down from December 2001's 173 million. (The wireline figure stood at 178 million at the end of December 2000.) By contrast, wireless carriers added an additional 7 million customers during the first half of 2002. (129 million vs. 122 million.)

The decline is due to several factors including that DSL high speed Internet service does not require a second line. DSL allows customers to surf the web and talk on the phone at the same time. (2.6 million consumers also get their local phone service via cable.)

The commercial sector and various content providers are at odds over how best to protect movies, music and other digital programming against theft. As mentioned in previous newsletters, their latest copy protection scheme is called the "broadcast flag."

Broadcast flags are a series of digital bits that are embedded in a television program or movie to ultimately prevent the content from being redistributed over the Internet. The "flag" would trigger technological roadblocks, preventing digital files from leaving the home. It is, essentially, a way of "marking" commercial digital-television content so that consumer electronics and computers will limit its ability to make copies.

Home taping ("time shifting") of movies, shows and games for personal use would remain legal, but retransmission over the Internet would not be possible. Thus, the main issue is really how illegal copying for subsequent transmission over the Internet can be prevented while still allowing legitimate copying for personal use.

The controversy caused the FCC in August to solicit comments on possible new regulations which would force hardware companies to engineer their digital products to work with broadcast flag technology. What the exact rules should be is what the commission is now seeking to

determine.

The FCC proposed that digital television be required to work according to the rules suggested by Hollywood studios and other content providers, through the use of the marker "flag" assigned to certain digital TV broadcasts.

The rules would require makers of digital TV hardware and software to apply controls which restrict the public's use of copyrighted materials broadcast over digital TV. There is considerable controversy over whether the FCC has jurisdiction to impose such a mandate without specific legislation.

The public comment period closed on the NPRM (No. 02-230) on December 6, 2002, and they were all predictable. Manufacturers opposed the measure, Hollywood studios, professional sports and other content providers were in favor.

Most individual consumers were angrily opposed to any notion of a broadcast flag. A big question is what happens to the two million DTV set owners who have already purchased digital television hardware that does not contain digital flag technology.

Commercial commenters generally believe that requiring the broadcast flag will stifle innovation of better technology and won't provide adequate protection against illegal distribution over the Internet. Most agreed that while protecting intellectual property is important, a government-imposed technology mandate is not the best way to achieve that goal.

A technology coalition which included such big names as Apple Computer, IBM, Intel, Microsoft and Motorola believe "Implementation is made difficult by the complex and ever-evolving nature of the technologies." They also don't feel that the lack of a copy-protection scheme is deterring programmers from offering digital-TV programming.

Tivo, Inc., a maker of personal video recorders that store digital copies of programs, said its security measures are stronger than the flag. If the flag is mandated, however, TiVo said, no copy restrictions should be placed on any devices within a home. Even programs that forbid any duplication outside a viewer's home network must allow unlimited copying among the viewer's collection of TVs, PCs and PVRs, Tivo said.

The Electronic Frontier Foundation also opposed the broadcast flag saying the proposal would give Hollywood unwarranted control over the development of

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digital television (DTV) and related technologies to the detriment of creators and consumers of the technologies. "A broadcast flag mandate is an ineffective solution to a non-existent problem," EFF said..

Content providers, on the other hand, said the flag is the best technology available now to prevent unauthorized copying and redistribution. They don't want a "video Napster" and believe that without the "flag," television stations will not have access to high-quality content because content providers won't risk redistribution over the Internet. They point out that a digital copy of a movie is just as good as the original and, unlike analog copies, there is no decrease of quality when subsequent copies are made.

The major U.S. sports leagues (including the NFL, NBA, NHL, NCAA, WNBA, PGA Tour, LPGA and Major League Baseball) collectively filed 27 pages of comments with the FCC. The leagues fear easy piracy and retransmission once digital TV becomes commonplace. They say that the current laws, originally written reflecting the existence of only analog TV, are insufficient to protect their signals from theft.

House Commerce Committee chairman Billy Tauzin (R-La.) continues to push for the broadcast flag to be embedded in digital television signals so content companies can limit the transfer of recorded movies between devices.

The FCC has begun a proceeding looking toward setting aside more frequencies to accommodate the explosion of new wireless technologies.

On December 11th, the FCC began a formal inquiry into additional spectrum for unlicensed transmitters below 900 MHz and in the 3 GHz band. The Commission said that "Such changes could allow the development of new and innovative types of unlicensed devices."

It noted that the current rules for unlicensed transmitters have been a tremendous success. "A wide variety of devices have been developed and introduced under those rules for consumer and business use, including cordless telephones, home security systems, electronic toys, anti-pilfering and inventory control systems, and computer wireless local area networks."

The FCC specifically asked about the "...feasibility of allowing unlicensed devices to operate in the TV broadcast spectrum at locations and times when spectrum is

not being used."

It also asked about permitting unlicensed devices to operate in other bands, such as the 3650-3700 MHz band, at power levels higher than other unlicensed transmitters with only the minimal technical requirements necessary to prevent interference to licensed services.

"Advances in computer technology make it possible to design equipment that could monitor the spectrum to detect frequencies already in use and ensure that transmissions only occur on open frequencies. The low cost of GPS equipment could allow a device to determine its location and use information from a database to determine whether there are any licensed operations in its vicinity. Equipment can be designed that is frequency agile, with the capability of changing frequency as needed to avoid interference to licensed users," FCC said.

FCC Chairman Mike Powell observed that "Technological advances now allow 'smart' low power devices to communicate in spectral open spaces that were previously closed to development. Our goal is to allow for the more efficient and comprehensive use of the spectrum resource while not interfering with existing services."

While strongly supporting making more spectrum available for unlicensed devices Commissioner Kevin J. Martin said he had reservations about permitting additional unlicensed devices to operate in the TV broadcast bands. He said it might "...create additional uncertainty and potentially delay the digital transition." He added that he hoped that unlicensed operations will "...eventually provide a last-mile application to connect people's homes to the Internet, offering a real alternative to telephone wires, cable, and satellite connections."

House telecom subcommittee member Edward Markey (D-Mass.), sponsor of a bill that calls for more unlicensed spectrum, told Powell that unlicensed wireless technologies show more near-term economic promise than the 90 megahertz designated by the government for third-generation wireless systems.

The FCC has raided Berkeley Liberation Radio and it is now off the air. On December 11th, FCC agents accompanied by at least a dozen federal marshals and 2 Oakland police officers came to the BLR studio and carted away all their broadcast equipment. They left behind a copy of the seizure warrant.

BLR is an unlicensed (pirate) community radio station serving the California bay area at 104.1 FM. The station began broadcasting in 1998, after Free Radio Berkeley was ordered off the air by a federal injunction. No additional details are yet available.

The FCC has a new (and excellent) writeup on its website entitled "What is Digital TV and Why is it Happening." You will find it at: <www.fcc.gov/cgb/consumerfacts/digitaltv.html>.

The U.S. Census Bureau has an interesting online (and constantly updated) U.S. and World population clock at: <www.census.gov/main/www/popclock.html>.

AMATEUR RADIO

Twelve more pilot schools have been added to the ARRL Amateur Radio Education & Technology Program – otherwise known as "The Big Project." There are presently 41 schools in the program with 1,285 students working toward an amateur license. The program in 2002 graduated 176 students with amateur licenses.

December 15, 2002 marked the 100th Anniversary of Guglielmo Marconi's first complete transatlantic message from Table Head, Glace Bay (Nova Scotia) to Poldhu, England. Limited transatlantic message service began on December 21, 1902.

December 12th was the 101st Anniversary of Marconi's receipt of the first wireless signal from Poldhu to Signal Hill, St. John's (Newfoundland).

Amateur radio operators recreated Marconi's first wireless signals and messages using Morse Code at both Signal Hill and Glace Bay on December 12 and 15.

American Radio Relay League President Jim Haynie, W5JBP, was in Japan last month to represent ARRL at the 75th anniversary of the Japan Amateur Radio League (JARL).

Shozo Hara, JA1AN, the president of JARL for the past 32 years, gave the keynote speech.

While in Japan, Haynie also met with ICOM President Tokuzo Inoue, JA3FA, to discuss emerging technologies.

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Amateur Radio Operator Census by State – December 31, 2002 compared to December 31, 2001

STATE	EXTRA		ADVANCED		GENERAL		TECHNICIAN		NOVICE		TOTAL	
	2001	2002	2001	2002	2001	2002	2001	2002	2000	2002	2001	2002
AK	445	465	382	372	643	654	1598	1612	154	116	3222	3219
AL	1556	1663	1285	1248	2072	2084	5210	5243	382	358	10505	10596
AR	1017	1058	815	800	1271	1265	3641	3682	285	261	7029	7066
AZ	2230	2386	2078	2049	3040	3100	7717	7724	593	544	15658	15803
CA	11183	11614	11417	11089	16938	17104	54836	54800	6552	5476	100926	100083
CO	1859	1967	1622	1599	2418	2442	5789	5964	541	474	12229	12446
CT	1329	1396	1116	1083	1896	1869	3217	3221	690	647	8248	8216
DC	70	72	74	70	102	106	132	135	28	30	406	413
DE	238	250	178	172	329	334	563	576	75	68	1383	1400
FL	5684	6001	6233	6124	9812	9951	15177	15280	2797	2463	39703	39819
GA	2148	2308	2020	1982	2987	3053	6819	6818	645	574	14619	14735
HI	485	506	382	369	580	587	1677	1738	191	175	3315	3375
IA	998	1049	1068	1037	1501	1512	2486	2485	390	354	6443	6437
ID	575	603	440	431	845	872	2417	2447	147	136	4424	4489
IL	3383	3544	2976	2893	5002	5000	9817	9845	1511	1395	22689	22677
IN	2027	2156	1822	1769	3191	3219	7082	7168	874	823	14996	15135
KS	966	1010	843	819	1610	1634	3372	3355	462	422	7253	7240
KY	1229	1294	956	930	1688	1682	4458	4491	523	452	8854	8849
LA	1016	1049	1008	981	1394	1404	2935	2864	343	320	6696	6618
MA	2451	2523	1966	1912	3195	3263	5761	5672	1007	926	14380	14296
MD	1920	2016	1619	1575	2329	2393	4545	4493	671	623	11084	11100
ME	677	710	536	529	1041	1071	1891	1939	254	224	4399	4473
MI	3109	3299	2634	2564	4577	4628	9735	9834	1126	1052	21181	21377
MN	1655	1762	1469	1436	2422	2420	4633	4727	554	519	10733	10864
MO	1906	1984	1663	1618	2760	2754	5766	5748	659	631	12754	12735
MS	684	738	645	624	953	943	2165	2109	204	167	4651	4581
MT	446	468	358	351	643	656	1456	1467	159	153	3062	3095
NC	2753	2888	2355	2316	3687	3722	8693	8762	1115	1026	18603	18714
ND	216	223	167	161	369	359	731	771	77	68	1560	1582
NE	551	575	555	542	996	1012	1593	1599	206	196	3901	3924
NH	874	921	583	576	1049	1064	2195	2192	274	252	4975	5005
NJ	2550	2645	2284	2224	3405	3407	6091	6030	1236	1092	15566	15398
NM	814	870	698	686	1002	1015	2758	2844	149	139	5421	5554
NV	670	744	593	589	1070	1078	2262	2324	184	170	4779	4905
NY	4541	4720	4118	3995	6803	6797	13751	13662	2808	2508	32021	31682
OH	4276	4486	3550	3469	6227	6237	14292	14299	1821	1734	30166	30225
OK	1281	1351	1103	1067	1605	1618	4799	4850	396	344	9184	9230
OR	1770	1877	1650	1623	2993	3020	6099	6312	681	644	13193	13476
PA	3927	4129	3354	3274	5460	5497	9986	10050	1551	1451	24278	24401
PR	366	379	487	473	840	858	2811	2915	1627	1422	6131	6047
RI	387	398	266	262	551	562	934	934	182	164	2320	2320
SC	1074	1134	876	860	1575	1607	3060	3081	303	288	6888	6970
SD	257	270	240	235	377	384	603	629	100	94	1577	1612
TN	2095	2227	1822	1766	2783	2799	6655	6729	611	562	13966	14083
TX	6518	6913	5819	5641	8328	8408	19527	19900	1751	1592	41943	42454
UT	789	838	624	596	1035	1068	6124	6306	257	239	8829	9047
VA	2826	2995	2333	2271	3455	3485	7424	7464	913	835	16951	17050
VI	48	50	28	25	85	80	116	120	19	16	296	291
VT	353	376	242	233	451	451	1090	1083	99	89	2235	2232
WA	3217	3425	2892	2817	4895	4997	12135	12410	1180	1089	24319	24738
WI	1579	1695	1408	1361	2334	2361	4838	4841	533	498	10692	10756
WV	796	853	588	565	1097	1095	3688	3756	297	269	6466	6538
WY	242	261	197	181	321	340	788	795	73	70	1621	1647
Other	254	258	118	104	207	214	1006	942	63	55	1648	1573
Total	96310	101392	86555	84338	138239	139535	318944	321037	40323	36289	680371	682591
Increase	+2559	+5082	-2124	-2217	+4221	+1296	-691	+2093	-4781	-4034	-816	+2220

Other includes APO (AA, AE, AP), American Samoa, Guam, and N. Mariana Island

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HAARP SEEMS TO HAVE INCREASED ITS POWER

The High Frequency Active Auroral Research Program, otherwise known as HAARP, is officially a government "ionospheric research study, a strictly scientific program to study the aurora borealis and to enhance communications capabilities." One objective of the project is to "heat" the ionosphere, the uppermost layer of the atmosphere that ranges 35 to 500 miles above the surface of the earth.

The HAARP Program is jointly managed by the U.S. Air Force and the U.S. Navy, and is conducted at a government facility in Gakona, Alaska, approximately 160 miles from both Anchorage and Fairbanks in east-central Alaska.

But there are those who say that HAARP is really a super secret military weapons project. Other U.S. military documents put it more clearly: HAARP aims to learn how to "exploit the ionosphere for Department of Defense purposes". Communicating with submarines and permitting the detection and precise location of tunnels, shelters, and other underground shelters are two anticipated capabilities.

The most outlandish charges about HAARP are that it is designed to disrupt the human brain, jam all communications systems, change weather patterns over a large area, interfere with wildlife migration, control radio wave propagation, effect aerial human mood and mind control and harm people's health.

Before the HAARP program began, the Gakona site had been planned by the Air Force, to be an Over The Horizon Backscatter (OTH-B) radar installation. The initial antenna array consists of 48 crossed-dipole antenna elements spread over several acres mounted on 72 foot towers arranged in 8 columns by 6 rows.

HAARP's authority to transmit is derived from the National Telecommunications and Information Administration. The NTIA, the government counterpart to the FCC, has restricted HAARP to specific frequency ranges (none of which are amateur), and operates on a voluntary non-interference basis. This means that all other occupants of the HF spectrum have priority, and HAARP must cede frequencies to existing users.

The facility has been under construction for nearly ten years and its final configuration has not yet been reached. The HAARP transmitter facility was designed to be built in a modular fashion with additional transmitters and their associated beam antennas simply being added on in rows and columns in a large array of antennas to increase the total output power.

Since about 1999, HAARP's 48 antennas have radiated an effective power output of about 20MW. The second stage of development will increase the array to 110

antennas with an effective power output of 150MW. The final stage of construction increases the array to 180 crossed dipole antennas and a total power output of up to one gigawatt (1 billion watts.) There is reason to believe that the second phase of the project has now been completed.

Although denied by the military, HAARP seems to now be operating at greatly increased power. The event was featured on the Art Bell's nationally syndicated Coast-to-Coast radio show earlier this year and he invited the numerous radio amateurs and short wave listeners in his audience to listen to the mysterious radio signal on 3390 kHz just below the 80-meter ham band.

Bell (who holds a ham ticket and W6OBB) became the top overnight talk show host in America in 1999. He resigned from his syndicated radio show on April 26, 2000 to attend to personal family problems and returned just as unexpectedly to the airwaves February 5, 2001.

According to Bell, the Navy, the Air Force and several other officials connected

with HAARP denied they are the source of the signal and contend that HAARP has not been operated since October 1999. But by using a radio receiver's S-meter and comparing the power of a known HF station exactly in the same direction as HAARP, radio operators were able to pinpoint the location and mathematically estimate the power level of the distant 3390 kHz signal.

The approximate power estimate was multiplied by 10 since 90 percent of the power is directed straight up toward the ionosphere. Using this technique the total effective output power from HAARP is now about 170 MW.

But the unanswered question still remains: what is the ultimate purpose of HAARP and its high power radio waves. Many experts have trouble believing that the U.S. would expend the massive effort and resources necessary to simply study communications phenomena.

Russia believes that the USA is planning to conduct full scale testing of three such facilities in early 2003. A second one is supposedly in Greenland and the third one in Norway. They believe the network "...will create weapons capable of breaking radio communication lines and equipment installed on spaceships and rockets, provoke serious accidents in electricity networks and in oil and gas pipelines and have a negative impact on the mental health of people populating entire regions." They want an international ban be placed on such large-scale geophysical experiments.

The "HAARP.cam" displays an online photo of the facility at: <www.haarp.alaska.edu/haarp/cam.fcgi>. Photos are taken at periodic intervals throughout the Alaskan daylight hours.

Official HAARP Program Purpose

HAARP is a scientific endeavor aimed at studying the properties and behavior of the ionosphere, with particular emphasis on being able to understand and use it to enhance communications and surveillance systems for both civilian and defense purposes.